

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1, 6-9, 11, 12, 15-17 and 21 are currently being prosecuted. The Examiner is respectfully requested to reconsider his rejections in view of the Amendments and remarks as set forth below.

By way of the Advisory Action of December 30, 2002, the Examiner indicated that claims 1 and 8 would be allowable except for a problem with antecedent basis in claim 1. By way of the present amendment Applicants are resubmitting claims 1 and 8 for the correction of this phrase. It is therefore assumed that claims 1 and 8 are now allowable as previously indicated by the Examiner. This Amendment also cancels claims 2-5, 10, 13, 14 and 18-20, leaving only claims 6, 7, 9, 11, 12, 16, 17, and 21 which have been allowed, claims 1 and 8 which should now be allowable and claim 15. Applicants presented arguments to the Examiner in the interview of December 9, 2002. These arguments were also presented in the non-entered amendment of December 13, 2002. These arguments are now incorporated by reference. However, since this is the only claim which has not yet been indicated as being allowable, the Examiner is requested to contact the undersigned if for any reason he finds this claim not allowable so that the Examiner's amendment may be discussed.

CONCLUSION

In view of the above remarks, it is believed that the remaining claims are allowable. If there are any outstanding matters that need to be resolved, the Examiner is requested to contact Mr. Robert F. Gnuse (Reg. No. 27,295) at the telephone number of the undersigned below, to discuss an Examiner's Amendment to place the Application in condition for allowance.

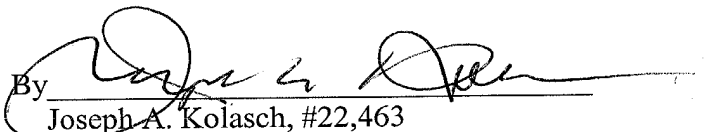
Attached hereto is a marked-up version of the changes made to the application by this Amendment.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicant respectfully petitions for a two (2) month extension of time for filing a response in connection with the present application and the required fee of \$410.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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JAK/RFG/mlr
3777-0102P

Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please cancel claims 2-5, 10, 13, 14 and 18-20 without prejudice or disclaimer of the subject matter contained therein.

1. (Twice Amended) An ultrasonic cleaning apparatus which cleans a subject to be cleaned by utilizing oscillation generated by an ultrasonic oscillator, comprising:
 - a power amplifier for amplifying an amplitude of a signal to supply the signal as power to said ultrasonic oscillator;
 - a detector for detecting a state of said ultrasonic oscillator; and
 - a controller for controlling a frequency of said signal depending on an output detected by the detector,
 - a switching transistor connected between said power amplifier and said ultrasonic oscillator,
 - a switch control section connected to said switching transistor,
 - wherein said switch control section turns off said switching transistor until a phase difference becomes equal to a predetermined value, and turns on said switching transistor after said phase difference becomes equal to said predetermined value, and
 - wherein said power supplied to said ultrasonic oscillator is set to a range from 1W to 10W.

8. (Twice Amended) An ultrasonic cleaning apparatus which cleans a subject to be cleaned by utilizing oscillation generated by an ultrasonic oscillator, comprising:

a power amplifier for amplifying an amplitude of a signal to supply the signal as power to said ultrasonic oscillator;

a detector for detecting a state of said ultrasonic oscillator; and

a controller for controlling a frequency of said signal depending on an output detected by the detector,

wherein said power supplied to said ultrasonic oscillator is set to a range from 1W to 10W and a difference between a resonance frequency of said ultrasonic oscillator and an anti-resonance frequency thereof is regulated to 1 kHz or more, and

wherein said ultrasonic oscillator is a Langevin type piezoelectric oscillator, and a resonance frequency thereof is set to a range from 20 kHz to 100 kHz.